

ABSTRACT

A storage pixel sensor disposed on a semiconductor substrate comprises a photodiode having a first terminal coupled to a first potential and a second terminal. A barrier transistor has a first terminal coupled to the second terminal of the photodiode, a second terminal and a control gate coupled to a barrier set voltage. A reset transistor has a first terminal coupled to the second terminal of the barrier transistor, a second terminal coupled to a reset reference potential that reverse biases the photodiode, and a control gate coupled to a source of a RESET signal. A photocharge integration node is coupled to said second terminal of said barrier transistor. The photocharge integration node comprises the control gate of a first source-follower transistor. The first source-follower transistor is coupled to a source of bias current and has an output. A capacitive storage node is coupled to the output of the first source-follower transistor and comprises the control gate of a second source-follower transistor having an output. An exposure transistor is coupled between the output of the first source-follower transistor and a global current-summing node and has a control gate coupled to a saturation level voltage.